REMARKS

Summary of the Office Action

Claims 1, 6-9 and 16-18 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 5,142,393 to Okumura et al. (hereinafter "Okumura") in further view of U.S. Patent No. 5,982,464 to Wang et al. (hereinafter "Wang"), U.S. Patent No. 6,320,629 to Hatano et al. (hereinafter "Hatano") and U.S. Patent No. 6,351,298 to Mitsui et al. (hereinafter "Mitsui"). Claims 2-5 and 10-15 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form.

Rejections under 35 U.S.C. § 103(a)

Claims 1, 6-9 and 16-18 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Okumura in further view of Wang, Hatano and Mitsui. Applicant respectfully traverses this combination rejection for at least the following reasons.

The Final Office Action applies a newly-added reference to Wang in combination with the previously-applied Okumura, Hatano, and Mitsui references to reject independent claims 1 and 9. The Final Office Action concedes that "Okumura et al. does not disclose a sub-twisted nematic liquid crystal." However, the Final Office Action then alleges that Wang "discloses that sub-twisted, twisted, and super-twisted nematic liquid crystal materials were all conventional functionally equivalent materials used in displays." The Final Office Action cites to col. 5, lines 35-45 of Wang and alleges that Wang "teaches that any one of these types of liquid crystal materials could be used in a display as long as it had a phase that exhibits birefringence." This combination rejection under 35 U.S.C. § 103(a) is respectfully traversed for at least the following reasons.

In the previous Amendment filed on June 18, 2003, Applicant explained that the instant application differs from the previously-applied references in that it discloses a display and methodology directed to an arrangement which utilizes a low twisted-nematic (LTN) liquid crystal having a twist angle in a range of 1 to 89 degrees. As described, for example, at page 8 of the instant specification, since the liquid crystal of the arrangement and methodology of the instant application has such a small twist angle, it can compensate a light incident to or coming out from the TN liquid crystal display by using, for example, only an optical plate (for example, A-plate 32) without using the C-plates and the 0-plates of the hybrid structures described in the Background of the Invention portion of the instant application in connection with Fig. 1.

In other words, these additional optical plates that are required in the conventional 90 degree twist angle arrangements are not required in the arrangement of the instant invention, thereby simplifying the structure of the LCD and the manufacturing process thereof. As described further at page 12 of the instant application, this advantageous feature of the instant application's invention results in an improved viewing angle and contrast while simultaneously simplifying the panel structure and reducing the number of manufacturing steps.

The Final Office Action asserts at page 3 that "it would have been obvious to one of ordinary skill in the art ... to use sub-twisted liquid crystal material [as allegedly disclosed in Wang] because it's well known nature allowed for the manufacture of cost effective devices having predictable behavior."

Applicants respectfully submit that Wang discloses a structure for color display using a liquid crystal having a first optical state exhibiting birefringence and a second optical state different from the first optical state. Moreover, Wang discloses using a liquid crystal having super-twisted nematic (STN), twisted-nematic (TN) or sub-twisted nematic (SbTN)

characteristics. See, for example, col. 5, lines 41-46 of Wang. However, Wang goes on to require that for any of these three types of liquid crystal to be used in the disclosed invention, it must have a phase that exhibits birefringence. In other words, Wang's disclosure of a sub-twisted nematic (SbTN) characteristic is limited to a teaching of a particular sub-twisted nematic (SbTN) arrangement having a phase that exhibits birefringence. The liquid crystal arrangement of the instant invention is not so limited.

Moreover, Applicants respectfully submit that the arrangement and methodology of the present invention as claimed provides the ability to utilize an optical plate in place of several optical plates, thereby simplifying the structure of the LCD, as discussed above. Applicant respectfully submits that Wang does not teach or suggest the desirability of using an optical plate instead of several optical plates. Thus, even assuming arguendo that Wang's sub-twisted nematic (SbTN) disclosure is similar to the 1-89 degree limitations claimed in the instant application, Wang's disclosure of an arrangement having several optical plates, along the lines of the arrangement described in the Background of the Invention portion of the instant application, does not suggest the desirability of combining features from the variously applied references to obtain the combinations claimed in the instant application.

Accordingly, for at least the foregoing reasons, Applicant respectfully submits that Wang teaches away from the features of the claimed invention and there is no suggestion provided for making the combination rejection under 35 U.S.C. § 103(a) as asserted by the Final Office Action.

Furthermore, Applicant respectfully submits that the Office Action has pieced together four references in its combination rejection under 35 U.S.C. § 103(a), as indicated at page 2, section 1, lines 1-3 of the Office Action. However, MPEP § 2143.01 instructs that "[t]he mere

fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination. In re Mills, 916 F.2d 680, 16 USPQ 2d 1430 (Fed. Cir. 1990)." MPEP § 2143.01 further instructs that "[a]lthough a prior art device 'may be capable of being modified to run the way the apparatus is claimed, there must be a suggestion or motivation in the reference to do so.'" Applicant respectfully submits that the references do not provide such a suggestion or motivation.

Applicant respectfully submits that the only motivation to piece together the applied references of the Office Action is found in the Applicant's own application. MPEP § 2141 instructs that "the references must be viewed without the benefit of impermissible hindsight vision afforded by the claimed invention." MPEP § 2143 instructs that "the teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, not in applicant's disclosure. In re Vaeck, 947 F.2d 488, 20 USPQ 1438 (Fed. Cir. 1991)."

As discussed above, neither of Wang and Okumura, or the other applied art, teach any desirability of combining Wang's sub-twisted nematic twist angle into the arrangement of Okumura, or the other applied references. Moreover, the Office Action itself states at page 2 that Wang "discloses that sub-twisted, twisted, and super-twisted nematic liquid crystal materials were all conventional functionally equivalent materials used in displays." Thus, there is no motivation disclosed in the applied references for choosing only Wang's sub-twisted variety, in particular, and incorporating it into the arrangement of Okumura, or the other art of record. Instead, the only motivation for adding a sub-twisted arrangement into the arrangement of Okumura is the motivation found in Applicant's own application, as described above, with regard to, for example, minimizing the number of required optical plates. See also, for example,

pages 8 and 12 of the instant specification for a detailed discussion of particular advantages resulting from the arrangement and methodology of the instant application's disclosed inventions. These advantages are not contemplated by the applied art of record.

The Federal Circuit has clearly held that "the motivation to combine references cannot come from the invention itself." Heidelberger Druckmaschinen AG v. Hantscho Commercial Products, Inc., 21 F.3d 1068, 30 USPQ 2d 1377 (Fed. Cir. 1993). Thus, Applicant respectfully submits that the Office Action has not established a *prima facie* case of obviousness and that the rejections under 35 U.S.C. § 103(a) should be withdrawn.

Absent any teaching or suggestion *in the prior art* to adapt the teachings of Okumura to meet the claimed invention, the rejection under 35 U.S.C. § 103(a) is improper. Accordingly, Applicant respectfully submits that the rejection under 35 U.S.C. § 103(a) should be withdrawn. Moreover, Applicant respectfully submits that there is no motivation taught or suggested by Okumura, Wang, Hatano, or Mitsui, to modify the teachings of any of the cited references with the teachings of Wang to obtain the claimed combinations.

Furthermore, Applicant respectfully asserts that dependent claims 6-8 and 16-18 are allowable at least because of their dependence from claims 1 or 9 and the reasons set forth above. The Examiner is thanked for the indication that claims 2-5 and 10-15 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form. However, Applicant respectfully submits that these claims are also allowable at least because of their dependence from claims 1 or 9 and the reasons set forth above. Accordingly, withdrawal of the objections to these claims is respectfully requested.

CONCLUSION

In view of the foregoing, Applicant respectfully requests reconsideration and the timely allowance of the pending claims. Should the Examiner feel that there are any issues outstanding after consideration of this response, the Examiner is invited to contact Applicant's undersigned representative to expedite prosecution.

EXCEPT for issue fees payable under 37 C.F.R. § 1.18, the Commissioner is hereby authorized by this paper to charge any additional fees during the entire pendency of this application including fees due under 37 C.F.R. §§ 1.16 and 1.17 which may be required, including any required extension of time fees, or credit any overpayment to Deposit Account 50-0310. This paragraph is intended to be a **CONSTRUCTIVE PETITION FOR EXTENSION OF TIME** in accordance with 37 C.F.R. § 1.136(a)(3).

Respectfully submitted,

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Dated: December 10, 2003 By: 

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